

CLAIMS

1. A combustion apparatus comprising:
a spraying means for spraying a fuel,
5 a channel for flowing the fuel therethrough, and
an intermittently operating valve disposed in the channel so as to be
closed and opened intermittently or periodically,
wherein at least part of the intermittently operating valve is enclosed
with a casing.
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2. The combustion apparatus as defined in claim 1,
wherein the casing comprises an inlet joint connected to an inlet side of
the intermittently operating valve and an outlet joint connected to an outlet
side of the intermittently operating valve.
- 15 3. The combustion apparatus as defined in claim 1,
wherein the casing consists essentially of an inlet joint connected to
an inlet side of the intermittently operating valve and an outlet joint
connected to an outlet side of the intermittently operating valve,
20 both which joints are engaged mutually, and
the valve being disposed in the space enclosed with the inlet joint and
the outlet joint.
- 25 4. The combustion apparatus as defined in claim 1,
wherein the casing consists essentially of an inlet joint connected to an
inlet side of the intermittently operating valve and an outlet joint connected
to an outlet side of the intermittently valve, and

the connecting portion with the inlet joint and the outlet joint being in close contact with each other.

- 5 5. The combustion apparatus as defined in claim 1,
wherein the casing consists essentially of an inlet joint connected to an inlet side of the intermittently operating valve and an outlet joint connected to an outlet side of the intermittently operating valve,

the inlet joint and the outlet joint having an indentation respectively, so that the indentations jointly form a through-hole for letting therethrough a
10 wiring connected to the valve, and

a seal which engages with each indentation so that it fits in the annular gap between the through-hole and a periphery of the wiring being mounted on the wiring.

- 15 6. The combustion apparatus as defined in claim 1,
further comprising a fuel pump for sending the fuel to the spraying means and disposed in the channel, and
wherein the casing is directly connected to at least one of the fuel pump and the spraying means.

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7. The combustion apparatus as defined in claim 1,
further comprising a filling filled between the casing and the intermittently operating valve.

- 25 8. A combustion apparatus comprising:
a spraying means for spraying a fuel,
a channel for flowing the fuel therethrough,

an intermittently operating valve disposed in the channel so as to be closed and opened intermittently or periodically,
a casing enclosing at least part of the valve, and
at least one fluidic component disposed in the channel and secured to
5 the casing.

9. The combustion apparatus as defined in claim 8,
further comprising a pressure buffer for buffering a pressure in the channel disposed in the channel and secured to the casing.

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10. The combustion apparatus as defined in claim 8,
further comprising a checking means disposed in the channel and secured to the casing for preventing the fuel flowing through the channel from flowing backward.

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11. The combustion apparatus as defined in claim 8,
further comprising:
a pressure buffer for buffering the pressure in the channel and
a checking means in the channel, and
20 wherein the pressure buffer and the checking means are secured to the casing.

12. The combustion apparatus as defined in claim 8,
wherein to the casing is secured at least part of the channel for flowing
25 the fuel therethrough.

13. A combustion apparatus comprising:

a spraying means for spraying a fuel,
a channel for flowing the fuel therethrough,
an intermittently operating valve disposed in the channel so as to be
closed and opened intermittently or periodically,

5 a casing enclosing at least part of the intermittently operating valve,
and

at least one elastic member interposed between the valve and the
casing.

10 14. The combustion apparatus as defined in claim 13,
wherein the intermittently operating valve comprises a valve body
capable of being driven so as to close and open the valve periodically and a
valve body housing for accommodating the valve body, and
the elastic member being mounted on the valve body housing.

15 15. The combustion apparatus as defined in claim 13,
wherein the intermittently operating valve is connected to the casing
via at least two connecting portions at both ends on inlet and outlet sides of
the valve, and

20 wherein at least the connecting portion at the end of the outlet side is
sealed up with and supported firmly by the elastic member.

16. The combustion apparatus as defined in claim 13,
wherein the at least one elastic member comprises two elastic members,
25 one of which is interposed between the casing and an inlet side of the valve
and the other of which is interposed between the casing and an outlet side of
the valve, and

wherein the elastic member interposed between the casing and the outlet side has a stronger elastic force than the elastic member interposed between the casing and the inlet side.

5 17. The combustion apparatus as defined in claim 13,
 wherein the intermittently operating valve comprises a built-in
 actuator reciprocating periodically so as to open and close the valve,
 wherein the elastic member is interposed in the space between the
 casing and the valve where a force in the direction of the reciprocation of
10 the actuator acts.

 18. The combustion apparatus as defined in claim 13,
 wherein the intermittently operating valve has a built-in actuator
 reciprocating periodically so as to open and close the valve, and
15 further comprising:
 a vibration-isolating member interposed between the valve and the
 casing and for buffering a force acting from the valve to the casing in the
 direction of the reciprocation of the actuator, and
 a seal interposed between the valve and the casing so as to prevent the
20 fuel flowing in and out of the valve from leaking.

 19. The combustion apparatus as defined in claim 13,
 wherein the intermittently operating valve has a built-in actuator
 reciprocating periodically so as to open and close the valve, and
25 further comprising:
 a vibration-isolating member interposed between the valve and the
 casing and for buffering a force acting from the valve to the casing in the

direction of the reciprocation of the actuator, and

a seal interposed between the valve and the casing so as to prevent the fuel flowing in and out of the valve from leaking,

the vibration-isolating member having a stronger elastic force than the
5 seal member.

20. The combustion apparatus as defined in claim 13,

wherein the intermittently operating valve has a built-in actuator reciprocating periodically so as to open and close the valve, and

10 wherein the elastic member is interposed between the valve and the casing and comprises a vibration-isolating portion for buffering a force acting from the valve to the casing in the direction of the reciprocation of the actuator and a sealing portion for preventing the fuel flowing in and out of the valve from leaking and interposed between the valve and the casing.